

## ABSTRACT

A design methodology for jointly optimizing the transmit waveform and receiver filter for multiple target identification is presented in presence of transmit signal dependent clutter like interference and noise. The methodology is applied and illustrated for various multiple 'target ID' problems in presence of transmit signal dependent clutter like interference and noise. The resulting correct target classification is significantly better than that achieved by a conventional chirp or any other transmit waveform. Unlike the classical radar case, the choice of transmit pulse shape can be critically important for the detection of extended targets in presence of additive channel noise and signal-dependent clutter.